Southwestern Medicine

Volume IV El Paso, Texas, August, 1920 No. 8

SOME FEATURES OF INFLUENZA

BY

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"The pandemic of influenza which swept over the world in 1918 was the most severe outbreak of this disease that has ever been known and it takes an unpleasantly high rank in the roster of epidemics generally.

"It is certainly impossible now, and perhaps always will be, to make any precise statement of the number of people who died because of this epidemic. But it is certain that the total is an appalling one. Undoubtedly a great many more people died from this cause than from all causes directly connected with the military operations of the great war. In the United States alone, conservative estimates place the deaths from the influenza epidemic at not less than 550,000, which is approximately five times the number (111,179) of American soldiers officially stated to have lost their lives from all causes during the war. And the end of the epidemic is by no means yet.

"In England and Wales the curve of mortality from influenza was even in 1907, seventeen years after the epidemic of 1890, higher than it was in any of the forty years preceding 1890.

"The decline in the mortality rate after the 1848 epidemic was similarly slow. There is no reason to suppose that conditions following the first explosion of this 1918 epidemic will be essentially different from those which obtained in other epidemics." (Public Health Reports U. S. Gov., August, 1919.)

Influenza is believed to have a permanent endemic existence in Eastern Asia. Whence it has spread in more or less pandemic form and with the rapidity of the modes of travel, at intervals varying from four to one hundred years for many centuries.

Our earliest definite knowledge of it dates from the early part of the sixteenth century, when it spread over all Europe and the British Isles, few of the inhabitants escaping the infection.

It appeared in America in 1557. Thirteen pandemics occurred during the nineteenth century, the last of them in 1889-90. Since that time the disease has occurred epidemically every winter in all parts of the world with gradually diminishing severity in most places.

One attack is believed to render a person more liable to a future in-

fection. Susceptibility is increased by physical debility resulting from age and previous illness. Epidemics are more frequent during late autumn or winter, but they have occurred during the warmer months.

The respiratory type we will pass as this is the most common type, and all are familiar with its manifestations.

We desire to call your attention to two other types that often complicate or exist alone in every epidemic, and they were quite frequent during the recent epidemic.

First. The Gastrointestinal Type: This type is characterized by persistent nausia and vomiting, or by intense abdominal pain and diarrhea. Any one of these symptoms may predominate; there are (a) cases of persistent vomiting of mucous or bile-stained liquid without diarrhea, (b) cases of vomiting and diarrhea with little or no pain and (c) others with intense griping pain with few if any other symptoms.

The last group of cases often suggest appendicitis, if indeed the appendix is not sometimes involved in them. "The fever may be high or a little above normal. Jaundice sometimes develops from the extension of the inflammation into the common bile duct." (Hare's Practice.)

Nervous Type: In this form the patient is seized with severe headache, muscular pains and neuralgia, profound mental and physical prostration. There are frequently also cutaneous hyperesthesia or sensitiveness to light and sound, rigidity and tenderness of the neck and muscles. Delirium with hallucinations appear in some cases.

The patient may sink into a typhoid stupor. Insomnia is troublesome and may persist after the patient has recovered otherwise. "Neuritis with intense neuralgic pains is not uncommon and may be followed by more or less complete paralysis of motion or sensation."

Recovery is generally slow and melancholia and great mental inactivity often persist for a long time.

The description of the gastro-intestinal and the nervous types I have condensed from descriptions from French, Hare and Watson. I have had three cases of the gastro-intestinal type and several cases of the nervous type under observation during the recent epidemic, which is my excuse for attempting to attract your attention to these types of the disease.

We found the gastro-intestinal type of cases very sure to keep one guessing. We found the nervous type the most disagreeable cases of the disease to treat, both in the acute stage and in the convalescent period. For both types, we found quietude, extended rest in bed, in a cool, well-ventilated room or porch, the most useful therapeutic agencies, not neglecting a frequent chemical examination of the urine. Laxatives and heart tonics were given when indicated. No other drugs used.

FLUOROSCOPY VERSUS PHYSICAL DIAGNOSTIC METHODS OF CHEST EXAMINATION IN ARMY WORK

BY

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You will recall that when the manner of excluding tuberculosis from the army was under discussion that in some quarters it was advocated that every soldier should be X-rayed and on this finding alone either accepted or rejected. This was advocated as the quickest and surest method.

I will merely offer a short review and criticism of two papers, bearing on the subject of the relative value of X-ray and physical diagnosis of the chest in army examinations. These papers give the results of the examinations for tuberculosis as conducted at Camp Lewis, Washington, in which I had a part as examiner. The one by Captain Diemer (1), head of the X-ray laboratory, strongly advocates the thorough-going use of the fluoroscope in wholesale chest examinations, and concludes: "Fluoroscopy should not be considered an adjunct in chest diagnosis, but should primarily be used to detect chest abnormalities, especially in wholesale examinations when the clinicians are compelled to devote only a few minutes to each subject."

The other paper, by Major Matson (2), president of the tuberculosis board, argues in favor of the basic importance of physical diagnostic methods in such examinations. He states: "Careful physical examination generally predicts the roentgenologic findings. As compared with careful physical examination, the roentgenological examination, even when done by an expert, occupies a place of secondary importance, so far as the diagnosis of tuberculosis in military service is concerned."

(1) Journal of American Medical Association, January 18, 1919.

(2) Journal of American Medical Association, June 28, 1919.

The standpoint of the roentgenologist in this specific series of examinations was as follows that out of a total representation of 16,539 chest fluoroscopies, 570 soldiers were rejected on account of pulmonary tuberculosis. Recognition of all these cases was not claimed for the fluoroscope, but a considerable percentage failed to be recognized by the clinical examiners of the tuberculosis board, including a number of unmistakable cases which were detected by the screen. With careful examination very few cases will pass the roentgenologist unrecognized, either as such or presenting definite abnormalities that prompt him to send the subject to the special examiners; that fewer cases will thus be overlooked than by clinical examination, particularly when the clinician is unable to eliminate haste and noise. He further states that the physical signs in the case of chronic and fibrocaseous tuberculosis are minimal and susceptible of recognition only by the experienced clinician, but the screen findings offer unmistakable evidences of the abnormality in question. Great care was taken not to diagnose tuberculosis unless the roent-

genologic evidence was unmistakable. The criticism that screen findings do not offer incontravertible evidence of a tuberculous condition and that a positive diagnosis of tuberculosis in the absence of excavation is impossible he meets as due to lack of familiarity with the technic of chest fluoroscopy.

In this series of examinations the selection of cases to go up for X-ray examination was made by a board of preliminary examiners, not experienced lung specialists, who were instructed to interrogate each man verbally regarding family history, past and present history. The physical examination was then made following the principles so masterfully outlined by Colonel Bushnell. If the preliminary examiner had reason to suspect tuberculosis, either from the man's family history, past history, present history or the results of the physical examination, he was required to send the man up for fluoroscopic examination. With the result of this examination recorded and a copy of same accompanying him the man was sent to the tuberculosis specialists for final opinion and disposition.

No soldiers were rejected until thoroughly re-examined by the specialists, no matter what the findings had been up to that time. Rejections were based on physical findings supported or unsupported by roentgenology. No man was rejected on roentgenologic findings alone.

Of the 16,589 men whose histories were recorded and who were sent up for fluoroscopic examination, 4,563 were re-examined and 570 were rejected on account of active tuberculosis, though according to roentgenologic examination 1,843 were tuberculous and suspicious. The use of stereoscopic plates which at that time and due to the nature of the examination was not possible, in place of the fluoroscope would undoubtedly have given a much more satisfactory comparison.

Now in analyzing the official tabulated results of rejected cases we find that of the 570 rejects on the clinical diagnosis made by the tuberculosis specialists the roentgenologic examination detected 315 or 55 per cent positive tuberculosis. Of 343 cases reported by the fluoroscopist as unqualifiedly tuberculosis, only 315 were rejected. His claim on these cases that clinical verification was not necessary was not borne out by the facts. It was indeed necessary not only to confirm the diagnosis of tuberculosis, but what was more important and the crux of the whole matter, its activity. Three hundred and fifteen were rejected and 28 were accepted for service with healed lesions. Of the 1,500 reported by the fluoroscopist as tuberculous suspicious, 1,372 were accepted by the tuberculosis specialists for full military service, while 128 were rejected with unmistakable physical findings of chronic active fibrocaseous tuberculosis. Of the 2,349 reported by the fluoroscopist with an abnormality, 2,249 were accepted on physical examination for full military service and 100 were rejected by the tuberculosis specialists for chronic active fibrocaseous tuberculosis. Of 12,393 reported negative by the fluoro-

scopist, 27 were found with physical findings sufficient to justify a diagnosis of chronic active fibrocaseous tuberculosis and they were rejected. Furthermore, in a group of 216 cases of active pulmonary tuberculosis rejected, in which the specialists confirmed the diagnosis of the preliminary examiners, only 116 of them, or 54 per cent, were recognied as positive tuberculosis by means of the roentgenologic examination. These were all cases in which the preliminary examiners were able to make the diagnosis on physical findings alone. Of 83 cases sent to the X-ray laboratory with a diagnosis of inactive or healed tuberculosis by the preliminary examiners and confirmed by the specialists, only 47, or 56 per cent, were positively diagnosed under the roentgen ray. Of which types I have quoted the roentgenologist as saying: "The physical signs in the case of chronic and inactive fibrocaseous tuberculosis are minimal and susceptible of recognition only by the experienced clinician, but the screen findings offer unmistakable evidences of the abnormality in question." This statement is certainly not in accordance with my experience, for the physical findings in this type of tuberculosis are invariably positive. As a matter of fact, the roentgenologic examination revealed only an average of 54 per cent positively tuberculous. Forty of the 216 active cases were pronounced suspicious and in 40 only an abnormality was noted, while in 20 the fluoroscopist reported lungs negative, failing to note changes departing from the normal.

The above data clearly indicate the shortcomings of fluoroscopic examination in chest work. In fact, the result of such findings led to the ruling of the surgeon general's office that reliance in chest X-ray work should alone be put in stereoscopic plates. Also the fact that the roentgenologic examination cannot supersede physical examination is sufficiently brought out in the data here presented.

Roentgenologic findings are of little value unless interpreted by one having a knowledge not only of roentgenology, but also of tuberculosis from a clinical and pathologic standpoint. The evidence furnished by roentgenology is only one link in the chain of evidence on which the diagnosis of tuberculosis is based.

I have utmost confidence in roentgenology in chest work when the procedure is properly interpreted, but I must protest against insinuations as to the unimportance of physical diagnostic methods.

PERFORATION IN GASTRIC AND DUODENAL ULCER

BY

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Perforation in gastric and duodenal ulcer does not occur frequently enough in the experience of the average physician in the Southwest for one to speak with much originality or authority upon the subject. But it does occur, and when it does, its prompt recognition and treatment are so essential to the life of the patient that we should have the essentials

of diagnosis and treatment ever in our minds. It is one of the conditions in which life is really saved by the doctor.

Gastric and duodenal ulcer are not rare conditions among us at all, as evidenced by the number of patients who seek relief elsewhere each year. And perforation is not unusual in ulcer either, occurring in from 6.6 per cent of ulcer cases according to Welch, up to 28.5 per cent according to Fenwick. In 20 per cent of all cases of perforation, the perforation is multiple, a fact that should not be forgotten when one is operating for such a condition.

Perforation may be acute or chronic. The ulcer may burrow its way slowly through the gut wall, heralding its advance by sufficient irritation of the serous covering to cause a localized peritonitis, with the production of an exudate, and the formation of adhesions between this particular portion of the stomach or duodenum and neighboring structures, such as the gall-bladder, the pancreas, and the abdominal wall. Such slowly progressing perforations are accompanied by attacks of pain, localized tenderness, and slight rises in temperature, and sometimes vomiting, all evidences of a localized peritonitis, such disturbances being once or repeatedly added to the digestive symptoms already complained of by the patient and due to the ulcer itself. When such attacks occur we sometimes speak of the ulcer as attempting perforation, because the exudate and adhesions formed in advance prevent a frank leak into the peritoneal cavity. It is in cases of this kind where perigastric abscesses are formed.

On the other hand, perforation may be acute, may occur suddenly, without protective adhesions forming in advance, and the contents of the stomach or duodenum may be permitted to escape into the general peritoneal cavity. It is in such cases that the symptoms are so alarming and prompt treatment so necessary.

The patient, perhaps in seemingly perfect health, for many of these ulcers are latent, is seized suddenly with most excruciating abdominal pain. He catches his breath for every movement of the diaphragm and abdominal muscles increases it. His expression is anxious, a cold sweat may break out upon the forehead. The abdominal muscles are board-like in their rigidity. And very important it seems to me, is the fact that one full dose of morphine rarely relieves either the pain or the rigidity. A second may relieve the pain, but the rigidity still persists. And the diagnosis can usually be made upon these two finds—the evidences of the suddenness and severity of the pain, and the board-like rigidity of the abdomen. Other symptoms may be present, but are not essential to the diagnosis. The patient may vomit or may only be nauseated at first. Shortly after the accident the temperature is normal or sub-normal; later there may be a slight rise.

If the ulcer is so situated that in perforating the contents of the stomach or duodenum are poured into the general peritoneal cavity, a

general peritonitis is shortly set up. Early this is irritative rather than septic, as the contents of the stomach and duodenum are quite sterile, due to the highly acid gastric secretion, but later a septic peritonitis develops.

If the perforation is on the posterior wall of the stomach the infection may be limited to the lesser peritoneal cavity, leading to a collection of fluid there, or a subphrenic abscess. In no field of surgery is the life of the patient more dependent upon the prompt recognition of the condition and immediate operation for its relief. Here, hours are very precious, as indicated by these statistics taken from Mayo Robson. In cases operated upon inside of 12 hours the mortality was 28.5 per cent; between 12 and 24 hours, 63.6 per cent, and between 24 and 36 hours, 87.5 per cent.

As to the type of operation to be performed, that, in my opinion, depends upon the experience and ability of the operator; the condition of the patient at the time of operation, and the surgical environment. This is no operation of election in which one has time to select the best surgeon, the best hospital facilities, and an opportune time in the course of the ailment. While in the hands of a master surgeon with a specially trained operating room team and every facility for the saving of time, excision of the ulcer and a gastro-enterostomy, or where other pathology indicates, as in one case reported in the Journal of the American Medical Association, a cholecystectomy and a posterior gastro-enterostomy may be and undoubtedly are the correct things to do, still for men less fortunately situated, where hospital facilities are not the best, and where the operating team is more apt to resemble the team of Ulysses, the ox and the mule, I very seriously doubt whether such procedure is wise.

To us, the gist of the matter is this: The patient's life is threatened by a hole in his intestinal tract. Let us, then, find the hole and close it, and thereafter, if time and ability permit, we may do something more. But the closure of the perforation and the prevention of further leakage are the all important things so far as the life of the patient is concerned, and a live patient with persistent digestive symptoms is better than a dead patient with a perfectly done gastro-enterostomy. Let me emphasize, too, the advice of William Mayo, that the perforation must be found and closed no matter what the condition of the patient. To leave the leak after a vain hunt, even with the institution of drainage, invites almost certain death.

Fortunately, the symptoms do not invariably persist after simple closure of the ulcer. The perforation is, in itself, an excision of the ulcer, and some of the patients, at least, get entirely well.

In closing the perforation, I believe it is good practice to cover the line of suture with a portion of the omentum drawn up over it, or better still to take a free omental graft and stitch it over the line of suture like a patch. This accomplishes two things: It strengthens our effort

to make a water tight closure, and it probably modifies the formation of adhesions that occurs in the process of repair. It is these adhesions which are really to be dreaded, for by distorting the alinement of the intestinal canal or immobilizing it sufficiently to interfere with its function, they are probably more often the cause of persistent symptoms than a persistence of the ulcer itself.

Should drainage be instituted after operation for perforation in gastric and duodenal ulcer? There seems to be considerable controversy about this among the leaders of the surgical profession. And I do not doubt but that the more skilled a surgeon becomes, and the more extensive his experience, the fewer of his abdominal cases as a whole, does he consider it necessary to drain. But I am again speaking from the standpoint of the average practitioner in New Mexico. I believe we do well to drain these cases. They were all formerly drained by everybody. There was then a goodly percentage of recoveries, in spite of the fact that it is now claimed in some quarters that it is the drain that infects the peritoneal cavity, a statement which I do not believe. And until the men who have ample experience are quite unanimous in their opinions and practice about drainage, I think it wise to lag just a little behind the van of progress and put in a drain that it is very easy to take out, rather than to leave one out that it will be woefully hard to put in.

One drain should be placed in the pelvis through a stab wound in the lower abdomen, another should be placed in the right kidney pouch or to the site of the perforation. If rubber tubes are used at all, they should be wrapped in gauze and oil silk, for direct pressure of a hard rubber tube undoubtedly causes necrosis of the bowel wall, with which it is in contact, sometimes, thus causing a troublesome fistula.

The important complications in perforation of gastric and duodenal ulcer are first of all peritonitis. This complication has a direct relation to the time that elapses between the onset of the perforation and the operation for its closure; the longer the interval, the more frequent and certain the peritonitis.

Collections of fluid in the lesser peritoneal cavity and subphrenic space are more frequent after perforating ulcer than any other acute abdominal condition. Such collections are not always purulent, however, as I had occasion to verify in one of my own cases, in which I aspirated a bloody exudate from above the liver and below the diaphragm three different times after operation, but where the patient got well without it becoming purulent.

Fixation of the stomach in an abnormal position that interferes with its motility, or a contraction of the pyloric ring preventing a prompt emptying of the organ, thus causing a continuance of the digestive symptoms, is a late and unfortunate complication calling for such surgical interference, as pyloroplasty, gastro-enterostomy or some other procedure

that permits of better drainage of the stomach. Such operations are operations of election, and the time of operation, and the surroundings and the operator can all be selected so as to give the patient the best attention possible.

In conclusion, I wish to emphasize these as being the life saving elements in this most serious catastrophy that every now and then presents itself to us: The prompt diagnosis based upon the suddenness of onset, the severity of the pain, and the board-like rigidity of the abdomen, and the immediate operation which closes the perforation, such closure being the one essential thing in saving the life of the patient. All further procedure depends upon the ability of the operator and the surroundings in which he finds himself.

PROPAGANDA FOR REFORM

Acriflavine G H and Proflavine G H.—Acriflavine and proflavine have been admitted to new and non-official remedies. However, the products sold by the Heyl Laboratories as "Acriflavine G H" and "Proflavine G H" have not been accepted for new and non-official remedies because (1) their quality did not conform to the council's standard, and (2) in the advertising issued for these drugs the manufacturer failed to give the unfavorable as well as the favorable clinical reports that have been published. (Jour. A. M. A., July 3, 1920, p. 51.)

Antidote for Snake Poison.—No anti-venom for snake poison has been accepted for new and non-official remedies. Experiments looking toward the production of anti-venom for snake poisoning seems to have met with some success, but the use of these products in therapy is still in the experimental stage. In general it has been shown that an anti-venom prepared for one species is not always effective when used against the venom of another species. (Jour. A. M. A., July 3, 1920, p. 51.)

Products of the American Organotherapy Co.—Dr. Alfred A. Lowenthal has announced a "Post-Graduate Course of Lectures and Clinics" to the physicians of Chicago, Denver, St. Louis, Columbus, etc.—and incidentally brings to the attention of the medical world the alleged virtues of the products of the American Organotherapy Company. A few years ago, the American Animal Therapy Company of Chicago put out such products as Lymphoid Compound (Lowenthal), Ova Mammoid (Lowenthal) and Prostoid (Lowenthal), and these products were exploited to the public. (Jour. A. M. A., July 3, 1920, p. 49.)

Echitone and Echinacea.—A circular entitled "Skin Lesions of Unknown and Uncertain Origin," sent out by Strong, Cobb & Co., is devoted to the exploitation of "Echitone," stated to contain echinacea, blue flag and pansy. Several years ago, the Council on Pharmacy and Chemistry examined "Echitone" and rejected the product because unwarranted therapeutic claims were made for it and for other reasons. The drug

echinacea has been claimed to be a "specific" for rattlesnake bites, syphilis, typhoid, malaria, diphtheria and hydrophobia. It has also been credited by enthusiasts with curative effect in tuberculosis, tetanus and exophthalmic goiter, and with the power of retarding the development of cancer. The Council on Pharmacy and Chemistry examined the claims made for this drug and reported that there was no reliable evidence in substantiation of the claims made for it. Echinacea is one of the many vegetable drugs introduced by the eclectics without a rational basis for their use. (Jour. A. M. A., July 17, 1920, p. 193.)

Na Versus K.—Advantages of sodium over potassium salts: (1) *Rational therapeutics*—Sodium compounds are as efficient as, in many instances better than the corresponding potassium compounds. Potassium is more toxic. (2) *National aid*—Accustom yourself to use sodium, an abundant natural product of the United States. The home of potassium is Germany, which, to its own commercial gain popularized potassium drugs. (3) *Price*—Sodium salts are cheaper. Potassium is, relatively speaking, a foreign substance in the body. Potassium and sodium salts are prescribed mainly for the effects of the radicle they carry. It is illogical, therefore, to administer potassium acetate or potassium bromide when sodium acetate or sodium bromide can more readily be given. In spite of the smaller demand, sodium salts are on the whole cheaper than potassium salts and, should the medical profession prescribe the sodium more generally, all of those that might be used in medicine would be less expensive than the corresponding potassium salt. (Jour. A. M. A., July 17, 1920, p. 192.)

Chaulmoogra Preparations and Sodium Morrhuate.—Chaulmoogra oil and preparations made from it are at present extensively employed and seem to produce amelioration in the majority of lepers to whom it has been administered persistently. Investigation has shown that chaulmoogra oil contains bactericidal substances that are one hundred times more active than phenol, and that this bactericidal action is specific for the acid fast group of bacteria to which the causitive organism of leprosy belongs. The product is inactive against all other organisms studies. On the other hand, it has been shown that sodium morrhuate and the fatty acids of cod liver oil do not have a similar action in tuberculosis which is also due to an acid fast bacterium. The value of chaulmoogra preparations in tuberculosis remains to be demonstrated, and their clinical trial should await their experimental investigation. The indiscriminate use of drugs in tuberculosis may arouse false hopes and may not be without danger to the patient. (Jour. A. M. A., June 5, 1920, p. 1578).

Chaulmoogra Oil in Leprosy.—The results obtained with the treatment of lepers at the leprosy investigation station in Kalihi, Hawaii, with the ethyl esters from chaulmoogra oil have been encouraging. It will require, however, some time to determine whether a real cure for leprosy has been discovered. (Jour. A. M. A., July 24, 1920, p. 263.)

Chemotherapy of Tuberculosis and the "Cerium Salt Treatment."—Koch studied the effects of many chemical substances, including a gold cyanide compound, on the growth of the tubercle bacillus in cultures, and concluded that all these substances remained completely inactive when tested upon the tuberculous animal. Compounds related to guaiacol and creosote came to have a widespread reputation as tuberculocidal agents without any one's taking the trouble to ascertain definitely whether they really had any particular capacity to injure tubercle bacilli in the test tube, the tuberculous animal or the consumptive patient, although the German manufacturing chemists provided innumerable proprietary derivatives of these drugs. Some time before the war, a "complex lecithin-copper compound" of unannounced composition was put forward in Germany. Another copper cure came from Tokyo, "cyanocuprol" of Koga. Other copper ccmpounds, such as copper arsphenamine, also were brought out. But none of these copper compounds have settled the tuberculosis problem. Recently, newspapers have given publicity to the treatment of tuberculosis by the so-called cerium earth salts in France. It appears that a few observations have been made on the inhibitory action on the growth of tubercle bacilli of salts of cerium and some other rare earth metals. The inhibitory action was less than that observed in the past for the chemical substances, and there is no record of experiments to determine their effect on experimental tuberculosis. Possible cerium earth salts help the tuberculosis; the evidence so far presented, however, is nothing to get excited about. (Jour. A. M. A., July 24, 1920.)

ON THE TRAIL OF THE YELLOW FEVER GERM

New York, March 29, 1920.—In the issue of the Review of Reviews published tomorrow will be an article making public for the first time in connected form the most important recent discoveries in the world-wide effort now being made to stamp out yellow fever. The more significant portions of the article follow:

It is announced that Dr. Noguchi and his associate, Dr. Kligler, both of the scientific staff of the Rockefeller Institute for Medical Research, have gone to Yucatan at the urgent request of the people and authorities of the stricken regions, to study yellow fever, which still ravages certain districts and is a menace to other tropical and semi-tropical countries—among them our own southern states and the West Indies.

Last season Dr. Noguchi went to Guayaquil on a similar mission, returning with results of great scientific interest and practical importance. The present expedition, like the former, is managed and financed by the International Health Board of the Rockefeller Foundation.

Early studies did not get far enough to develop promising methods of treatment for the disease. Nor did they suggest ways of security immunity in less hazardous fashion than through the successful weathering

of an attack. For one doesn't have yellow fever twice. More than this, though it was clear enough from all clinical experience and laboratory and field experiment that yellow fever must be incited by some sort of germ, these experts could not find the thing, strive as they might.

It was tantalizing to be so near and yet so far from the last step which might form a safe and ready vantage ground for new achievements. Every thimbleful of blood from a fever patient in the first five days of the disease, every mosquito which had fed upon him and become a carrier, might harbor this peccant and elusive thing, but no one could find it.

Noguchi Follows the Trail

Thus the request last year from Ecuador for counsel and assistance in solving the problems which were so sore a burden at Guayaquil was a lure to science and a mandate to humanity which the Rockefeller Foundation and the Rockefeller Institute cheerfully followed. Dr. Noguchi, the accomplished Japanese bacteriologist on the staff of the Institute, had long been a successful hunter of obscure bacterial incitants of infectious diseases, and, by his masterly command of cultural technique and his no less masterly patience and untiring devotion to his aims, has thrown light into many dark corners of biology. Furthermore, Dr. Noguchi was well acquainted with a disease called infectious jaundice, which a good deal resembles yellow fever.

So Noguchi, the logical leader of such an expedition, and his associates were welcomed at Guayaquil last year by a group of eminent physicians who were past masters in the detection and treatment of yellow fever and eager to be helpful, as indeed they were, in this new attempt to unearth the secret of this elusive pest-breeder. There was plenty of yellow fever in the hospitals at Guayaquil, and masters in its detection always at hand.

The Germ Found

Noguchi succeeded where the earlier workers had failed by inducing in guinea pigs, through the transference to them of a small quantity of the blood of yellow fever patients in the earlier days of their attack, symptoms and changes quite similar to those of the human disease. The pigs speedily developed fever, they grew yellow, they became torpid and very sick, and many of them presently died, their organs showing characteristic changes.

The blood of these experimental victims conveyed to other guinea pigs induced the disease anew through many sequences, and in this infected guinea-pig blood was detected by the microscope a minute organism resembling the Leptospira of infectious jaundice. Young dogs and monkeys were also found to be susceptible to inoculation with yellow fever blood.

Finally Noguchi succeeded in cultivating from the blood, at first of his artificially infected pigs and then of man, a living organism which he carried on through many successive generations in his culture tubes, and from which by inoculation he could induce the identical fatal disease in the guinea pig. This germ is not easy to cultivate, for it is finicky about its diet and environment and sulks and dies on the slightest provocation. The method of cultivation used was that through which the germ of infectious jaundice was discovered and need not be described here.

Its Name and Ways

The new germ is a very delicate, filamentous, spiral thing, tapering at the ends, and, when alive, goes wriggling, rotating, and twisting about in the blood or culture food. Not ordinarily visible when alive by direct light, even with the strongest lenses, it may be seen with what is called "dark field illumination," not known to the earlier observers, and then it looks to the straining vision like a shadowy wriggle rather than a definite object.

Noguchi called it *Leptospira* (meaning slender spiral) after its close relative of infectious jaundice. And, to signalize its power to induce in its victims the characteristic jaundice, or yellow color of the skin, he surnamed it *icteroides*. So it takes its place in science as *Leptospira icteroides*, alias, in the vernacular, Slim-spiral, the jaundice-maker.

It may be cultivated from the blood and tissues of yellow fever patients and of infected guinea pigs. Inoculation of the cultures induces the fatal typical infection in guinea pigs, from whose bodies the living germs may again be isolated. It was found to pass through the minute pores of a porcelain filter.

Experiments on guinea pigs show that inoculations with yellow-fever blood, or with cultures of the new-found microbe which were not fatal, conferred a notable degree of immunity to subsequent infection. Tests with the blood serum of convalescent yellow fever patients indicated that the organism which he had found was probably the inciting agent of the disease.

Having thus established a series of important facts indicating that the new-found *Leptospira* is at least the presumptive incitant of yellow fever in Guayaquil, Noguchi naturally got on the trail of the Stegomyia mosquito, which is quite at home, of course, in such a tropical region, and, as usual where the fever flourishes, on the job. His experiments showed that symptoms and tissue changes similar to those of yellow fever in man may be induced in guinea pigs by the bite of female Stegomyias which have previously sucked the blood of a yellow fever patient or of another guinea pig artificially infected.

Future Studies

The conjecture was ventured in the early days by many of the wise

ones in this field that the yellow-fever germ, when found, would prove to be, not a bacterium among the plants, but a protozoon, that is, a lowly animal; because it is mosquito-borne and has other features in common with that notorious and well-known protozoon parasite of malaria.

It is intersting to note in this connection, and just to show how exasperating nature can be, that the little group of microorganisms in which Dr. Noguchi's *Leptospira* of yellow fever belongs seems to dwell in a sort of No Man's Land of classification, between animals and plants, neither straight protozoa nor proper bacteria, and of questionable lineage and relationship in the hierarchy of life.

It is understood that Dr. Noguchi has been at work since his return in unraveling the life history of this, his newest addition to the rogue's gallery of microscopic human pests, and in searching for the possibilities of developing an effective immunizing or curative yellow fever serum.

CASCARA IN CONSTIPATION

There is a distinct advantage in using cascara sagrada in the treatment of chronic constipation. For example, cascara stimulates the muscular structure of the intestine, thus promoting normal peristalsis. It activates the intestinal follicles, thu saugmenting glandular secretion. Moreover, this stimulating effect is mild, not excessive. It approximates the work of Nature and is therefore not harmful or reactionary.

To state the case in another way, cascara unloads the bowel in a normal manner and not by exciting violent and painful peristaltic movements and tenesmus, such as not infrequently attend the use of the conventional purgative.

No other drug replaces cascara sagrada, which alone can be given for long periods without detrimental effect. In fact, success in its use depends upon its continued administration, in gradually ascending doses, until a natural daily action has become the fixed habit.

The original bitter fluid extract of cascara, introduced by Parke, Davis & Co., in 1877, is the preferred preparation in most cases, because of its well known bitter-tonic effect. It is given in doses of 5 to 30 drops, according to the condition to be met, and this dose may be continued for several weeks in chronic cases. In more obstinate cases the initial dose should be increased gradually until the desired result is attained. At this point a progressive tapering-off system of dosage is adopted, rather than an abrupt cessation of the treatment.

The bitter fluid extract of cascara is readily taken in gelatin capsules, which may be supplied to the patient with a medicine dropper. The prescribed dose is dropped into the capsule, which is then closed and swallowed with no suggestion of its contents.

Southwestern Medicine

Volume IV El Paso, Texas, August, 1920 No. 8

All articles must be made exclusive to this journal. Reports of Society Meetings are asked for from the Secretaries.
Items of interest, with the name of the sender will be acceptable.
Books for review should be sent to The Editor.
Advertisements of proprietary medicines must have had the preparations approved by the Council of Pharmacy, A. M. A.
All business communications should be addressed to El Paso Printing Co., El Paso, Texas, Telephone 337.

Annual Subscription $2 Members $1 Single Copies 25 Cents

Entered at the Postoffice at El Paso, Texas, as second class matter.

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If you do not get your Journal, kick to me. If you change your address, let me know and we'll follow you.
If anything does not please you, say so! Maybe we'll change. But we would sooner be cussed than damned with faint praise.

EDITORIALS

Austin, Texas, May.—It is largely up to the mothers of Texas to put the state in the registration area; the State Board of Health fully recognizes that if Texas as a state is to ever get into what is known as the registration area or the United States Vital Statistics Bureau and become recognized as being on a par with those states which now enjoy this great advantage that this will come about largely through the co-operation of the mothers themselves. There are almost daily evidences of the fact that mothers are becoming more and more aware of the vital importance of having their children's births recorded, which is important not only from a legal, social and industrial standpoint, but is absolutely necessary for the accurate and scientific study of disease and its proper prevention.

While it is the duty of the mother to know that her child's birth is recorded it should at the same time be a great pleasure and a source of satisfaction to her to know that she has performed this important piece of business for her helpless child and there is no one thing requiring so little time and effort on her part that will be so much appreciated by

the child when it has grown to realize the value of this forethought on the part of its own mother.

During 1919, probably more than 10,000 children were born in the state of Texas whose births were not reported.

Millions of dollars have been lost in claims and millions more have been spent in litigation for property rights which might have been saved to some one's children if only mother or some one had acted in time in behalf of the child by recording the date of birth.

Mother, will you help your child by making such report to the State Board of Health and also urge other mothers to do likewise?

IMPROVEMENT IN HOSPITAL SERVICE

Every state medical association in the United States has its part in the present universal movement for the betterment of hospital service. Every association now has its own committee which is studying the hospital situation in its state in co-operation with the Council on Medical Education of the American Medical Association. The council has obtained, through reports, correspondence and other methods, data relative to all hospitals in the country and each state committee has been supplied with the data relating to the institutions in its state. Through their closer familiarity with the hospitals, or by inspections, the state committee is in excellent position to verify these data and to make a reliable report to their state association and to the council.

For convenience and in order to secure uniformity of reports from the forty-eight committees regarding the relative efficiency of hospitals, blanks furnished by the council call for a rating of all hospitals in classes A, B and C, grouped also according to the special class of patients cared for. This rating is not for publication, but will aid the council in the preparation of a list of hospitals which are considered worthy of approval. These lists are subject to frequent revision so that names of other hospitals can be included as soon as sufficient improvements are made to warrant their being approved. State committees are urged to promptly report to the council any instances where such improvements have been made.

The purpose of the work is to aid the hospitals in providing for their patients the best possible service and in no way to injure those which are honestly endeavoring to provide such service. Toward this end, every possible assistance will be given to individual hospitals by the council or by the local state committee in establishing such changes as will make them worthy of approval.

Forty-two state committees have reported progress in connection with the latest survey and thirty-four have turned in reports regarding hospitals inspected and graded, which have more than half the entire bed capacity of all general hospitals in the country. Meanwhile, this work

of the council is not conflicting with, or duplicating the splendid work being done by the American College of Surgeons, the Catholic Hospital Association, the American Hospital Association or other agencies. In fact, the work of each agency is evidently complimenting that of the others.

At the New Orleans meeting, recently, the House of Delegates of the American Medical Association registered an intense interest in the improvement of hospital service and authorized the trustees to generously provide for that work. This work has been so intimately related to that of the Council on Medical Education that the name of this council was changed to the "Council on Medical Education and Hospitals."

In brief, further enlargement of hospital work by the American Medical Association is assured and in this work each state is destined to have an important part. Toward this end each association is urged to make its hospital committee permanent and to retain on it those who will not only be active but who also can do the work in the most efficient and unbiased manner. Hospitals, at present, form the closest link between the medical profession and the public and the medical profession should do all it can to aid the hospitals to provide the very best service possible.

ADVENTURES OF DOCTOR YOUNG DOCTOR—NUMBER FIVE

Doctor Young Doctor was becoming somewhat sophisticated. He was learning that all his confreres with greater years were not giving him the courteous professional treatment that he had been led to expect. However, he still had some faith left when he was called to see a case of intestinal obstruction. He felt that he could handle the case perfectly well and knew that with Old Doctor assisting it would be easy indeed. So he called Old Doctor in consultation. Old Doctor agreed in the diagnosis. It then became a matter as to who should operate. When the question was asked Young Doctor looked at Old Doctor expecting that the latter would tell the family that Young Doctor was competent, but that if they wished he would help him. But Old Doctor had forgotten that part of the book and mixed his lines. "I'll phone for the ambulance and send her to the hospital. I'll get my anaesthetist and I'll operate on the patient in about an hour, as it is necessary to relieve her suffering as soon as possible." And he did! A "life saving operation" he called it.

Young Doctor felt that he was being crowded into a position where he would enjoy the cutting of several throats, but the fine principles inculcated in school along with his bringing up would not permit him to engage in retaliatory tactics or to even seriously consider them.

BOOK REVIEWS

Orthopedic and Reconstruction Surgery, Industrial and Civilian, by Fred H. Albee, M.D., F.A.C.S., Professor and Director of Department of Orthopedic Surgery at the New York Post-Graduate Medical School and at the University of Vermont. Octavo volume of 1138 pages with 804 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth $11.00 net.

This volume on orthopedic surgery appears at a particularly opportune time when the experience of this well-known author will be of the greatest value in aiding the reconstruction of the unfortunates of the great war as well as the ordinary cases of civilian practice. Even a cursory examination of the text reminds one very emphatically that orthopedic surgery has passed that primeval stage when the older surgeon with unscrubbed hands watched his assistant use the osteoclast, and a break in the skin was considered a complication that he hardly knew how to handle. The technic of the present day bone surgery is probably the most exacting that we have, not excepting the surgery of that vital organ, the brain, and the general surgeon will hardly attempt this work until he had special instruction.

Dr. Albee is known as one of the pioneers of bone surgery and this is emphasized by the large number of references to methods originated by him. That he should see fit to give us the benefit of his large experience in so extensive a volume is most commendable. The matter covering a wide range of subjects—osteomyelitis, fractures, dislocations, deformities, arthritis, ankylosis, neoplasms of bone, nerve injuries and many others—is so extensive as to forbid mention. As a work of reference it is of paramount importance to any surgeon. It is well written and well illustrated and will undoubtedly be widely used. —E.B.R.

Diseases of the Chest and the Principles of Physical Diagnosis (Second Edition), by George W. Norris, M.D., Assistant Professor of Medicine in the University of Pennsylvania, and Henry R. M. Landis, M.D., Assistant Professor of Medicine in the University of Pennsylvania, with a chapter on Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph.D., M.D., Assistant Professor of Research Medicine in the University of Pennsylvania. Second edition, thoroughly revised. Octavo volume of 844 pages with 433 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth $8.00 net.

This is a book that should be in the possession of every one who aspires to proficiency in the diagnosis of diseases of the heart and lungs. Its most striking and useful feature is the wealth of illustrations from actual specimens and especially the many photographs of frozen sections. In this second edition are added a number of new chapters on such subjects as influenza, spirochetal bronchitis, calcification of the lungs, etc. The work is very complete and one will find practically all conditions met with well and ably described. The book is remarkably free from theoretic and speculative ramblings, only the well known and practical being set down and in a style that teaches and instructs. —G.W.

Principles and Practice of Physical Diagnosis, by John C. DaCosta, Jr., M.D., Ex-Associate Professor of Medicine, Jefferson Medical College, Philadelphia. Fourth edition, thoroughly revised. Octavo of 602 pages with 225 original illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth $4.75 net.

This well known work is a classic on diagnosis, especially by the ordinary clinical methods. The descriptions of signs and symptoms are minute, clear and exact, such as can only be set down by the experienced and skilled clinician. It is interesting to note under cardiorespiratory murmurs that "in children murmurs of this type account for two-thirds of all extracardial adventitious sounds," also that in cardiac hypertrophy the degree and site of hypertrophy can be more accurately determined by ordinary physical examination than by the electrocardiograph. This shows the safe and sane spirit of the book and is a fitting rebuke to the modern tendency to lean too much on instrumental and laboratory methods to the neglect of common observation, physical examination, experience, reason and judgment. Considerable new matter has been added, especially on the heart and lungs, and the knowledge gained by the late war has been carefully reviewed. —G.W.